

MR2349-721

Application Serial No. 09/988,089

Responsive to Official Action dated 24 May 2004

REMARKS/ARGUMENTS

This case has been reviewed and analyzed in view of the Official Action dated 24 May 2004. Responsive to the rejections made by the Examiner in the outstanding Official Action, Claim 1 has been amended and Claim 5 has been canceled from this case in order to more clearly clarify the inventive concept of the Applicant.

Prior to a discussion of the Examiner's objections and rejections made in the outstanding Official Action, it is believed that it may be beneficial to briefly review the subject Patent Application system in light of the inventive concept of the Applicant. The subject Patent Application system is directed to a photocatalytic electric fan. As shown in Fig. 3 of the subject Patent Application Drawings, the photocatalytic electric fan includes a main body 2 which houses standard air-flow fan components. In addition to the standard components, a photocatalytic lamp tube 40 is provided, and is mounted on lamp positioning element 6. The photocatalytic lamp tube 40 includes a UV light source and a glass-fiber cloth covering, containing titanium dioxide. As shown in Fig. 3, the photocatalytic lamp tube 40 is annular in shape.

The Examiner has objected to Claim 1 due to a typographical error in Line 13 as originally filed. Claim 1 has now been amended to overcome the Examiner's rejection.

The Examiner has further rejected Claims 1, 3-7, and 10-13 under 35 U.S.C. § 103(a) as being unpatentable over the Law Patent #2,354,817 in view of the Robertson Patent #4,892,712 and further in view of the Kratz German Patent #19912517. It is the

Examiner's contention that it would have been obvious to one having ordinary skill in the art to modify the device of Law to include a glass-fiber-photocatalytic cloth such that the air to be treated can thoroughly contact the coated surfaces and sufficient transparency to light at a wavelength to which the photoreactive material reacts to ensure that all the coated surfaces receive such light at an adequate energy level to ensure the catalytic or photoreactive effect.

The Law reference is directed to a sterilizer. As shown in the Figures, the floor lamp 11 comprises a standard 12 which is mounted on a hollow base, not shown. Case 16 is spaced from socket 17 and provides an air passageway 28 therebetween. A number of air inlets 29 in the base 15 of case 16 communicate with the passageway and conduct air through the sterilizer. Mounted within sockets 46 are germicidal lamps 49 which are disposed in co-planar relation above disk 32.

As shown in Fig. 1 of the Drawings, the lamps 49 have a substantially longitudinal somewhat cylindrical shape to them and are arranged parallel with respect to one another. The linear lamp tubes do not provide much space for air flow between them, and further, given the relatively open space within the fan shown at the top and bottom of Fig. 1, the purification of the air is not uniform.

The Robertson reference is directed to a fluid purification system. Fig. 2 diagrammatically shows a titanium dioxide weave sleeve 11 mounted around a cylindrical lamp 18 within a cylindrical jacket 19 having an inlet 20 for polluted fluid and

an outlet 21 for the treated fluid from which the pollutants have been substantially eliminated by conversion to harmless by-products.

The Robertson reference is not directed to a fan-mounted purification system. Though the reference does teach the photocatalytic purification of fluids using a titanium dioxide photoreactive material, the single lamp, illustrated in Fig. 2, is of a cylindrical, linear type. As shown in Fig. 2, the fluid passes around the lamp tube and not through the lamp or through a plurality of lamps. Thus, the fluid which is flowing near the outer wall of the cylindrical jacket 19 would receive less of a purification effect. This system does not provide for the substantial uniform purification provided by the subject Patent Application, as to be described below.

The Kratz reference appears to have been provided by the Examiner purely because of the use of stabilizers 4 and 6, along with a starter 3 connected to lamp 2. This reference does not teach fluid purification utilizing ultraviolet lamps or photoreactive materials and merely seems to have been provided purely for the stabilizer, starter, and lamp elements.

In contradistinction to each of the cited references, the system of the subject Patent Application utilizes an annular-shaped photocatalytic lamp tube 40, covered with a glass-fiber cloth formed of titanium dioxide. It is the annular shape of the photocatalytic lamp tube 40 which allows for the efficient and uniform purification of the air flowing through the fan. The annular shape of the photocatalytic tube 40 allows for the air to flow both

through the lamp tube itself and also around the lamp tube. This provides for an efficient and uniform purification of the air. Additionally, the air flow is not hindered, as would be the case of the air flowing through the relatively narrow passages provided by the lamps of the Law reference.

Neither the Law reference, Robertson reference, nor the Kratz reference, when taken alone or in combination, teach or suggest the use of an annular photocatalytic lamp tube 40 mounted within a fan.

Thus, neither the Law reference, Robertson reference, nor the Kratz reference, when taken alone or in combination, provide for: "...said at least one photocatalytic lamp tube having a substantially annular shape...", as is clearly provided by newly-amended Independent Claim 1.

Thus, it is not believed that the subject Patent Application is made obvious by either the Law reference, the Robertson reference, or the Kratz reference, when Independent Claim 1 is carefully reviewed.

The Examiner has additionally rejected Claim 2 under 35 U.S.C. § 103(a) as being unpatentable over the Law reference in view of the Robertson reference and further in view of the Kratz reference, and further in view of the Lee Patent #6,102,660. It is the Examiner's contention that it would have been obvious to one having ordinary skill in the art to modify the device of Law to include a face net for better dispersion of the treated air through the net.

The Lee reference is directed to a miniature fan for an air freshener. This reference is directed to, essentially, a standard fan and does not teach the use of a photocatalytic lamp device for the purification of the air flowing through the fan.

As described above with regard to the rejection under § 103 of Claims 1, 3-7, and 10-13, none of the Law, Robertson, or Kratz references teach or suggest the use of an annular photocatalytic lamp tube in combination with a fan for the efficient and uniform purification of air passing through the fan.

Since the Lee reference does not teach or suggest the use of any lamp, even when taken in combination with the Robertson reference, the Law reference, or the Kratz reference, none of the references, taken alone or in combination, teach or suggest the use of an annular photocatalytic lamp purification system.

Thus, neither the Law reference, the Robertson reference, the Kratz reference, nor the Lee reference, when taken alone or in combination, provide for: "...said at least one photocatalytic lamp tube having a substantially annular shape...", as is clearly provided by newly-amended Independent Claim 1.

Thus, based upon newly-amended Independent Claim 1, it is not believed that the subject Patent Application is made obvious by the Law reference, the Robertson reference, the Kratz reference, or the Lee reference, when taken alone or in combination, when Independent Claim 1 is carefully reviewed.

The Examiner has additionally rejected Claims 8 and 9 under 35 U.S.C. § 103(a)

as being unpatentable over the Law reference in view of the Robertson reference and further in view of the Kratz reference and the Monroe Patent #4,055,113. It is the Examiner's contention that it would have been obvious to one having ordinary skill in the art to modify the device of Law to include a rotatable face net in order to create air movement, which enhances flow of air.

The Monroe reference is directed to a ventilator apparatus and appears to have been cited by the Examiner purely because of the rotatable face net. This reference does not teach or suggest the use of any photocatalytic air purification system.

As described above, neither the Law reference, the Robertson reference, nor the Kratz reference teach or suggest the use of an annular photocatalytic lamp tube. The system of the subject Patent Application, however, utilizes a photocatalytic lamp tube 40, as shown in Fig. 3 of the subject Patent Application Drawings, which allows the air flowing through the fan to flow both through the lamp tube and around the lamp tube, thus providing highly efficient purification and, more importantly, substantially uniform purification of the air flowing through the fan.

Neither the Law reference, Robertson reference, Kratz reference, nor Monroe reference, when taken alone in combination, teach or suggest the use of an annular lamp tube for providing photocatalytic purification of fluid flowing through a fan.

Thus, neither the Law reference, Robertson reference, Kratz reference, nor Monroe reference, when taken alone or in combination, provide for: "...said at least one

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photocatalytic lamp tube having a substantially annular shape...”, as is clearly provided by newly-amended Independent Claim 1.

Thus, based upon newly-amended Independent Claim 1, it is not believed that the Application is made obvious by the Law reference, Robertson reference, Kratz reference, or Monroe reference, when taken alone or in combination, when Independent Claim 1 is carefully reviewed.

It is now believed that the remaining Claims 2-4, 6-13 show patentable distinction over the prior art cited by the Examiner for at least the same reasons as those previously discussed for Independent Claim 1.

The remaining references cited by the Examiner, but not used in the rejection, have been reviewed, but are believed to be further removed when patentable distinctions are taken into account than those cited by the Examiner in the rejection.

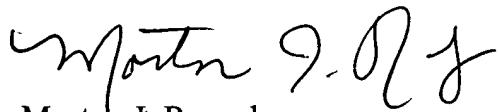
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It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,



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